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NEW CANADIAN ICHNEUMON FLIES WITH SOME NOTES ON SYNONYMY (HYMEN.: ICHNEUMONOIDEA).

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Apanteles petrovae n. sp.

Traces to section 77 in Muesebeck's key (Proc. U.S.N.M., LVIII, 493, 1920) but differs from all species falling under that section as follows: at once distinguished from *etiellae* and *cassianus* by having the ovipositor sheaths as long as abdomen; differs from *victoriae* in having the wings clear hyaline and from *monticola* which it appears to resemble more closely, in being somewhat larger, with scutellum impunctate, propodeum without a trace of a median carina and the radius of fore-wing uniting with transverse cubitus in a rounded obtuse angle. The species is described as follows:

Female.—Length 3.4 mm. Face broader than long, dull, somewhat roughened and very indistinctly punctate; frons with shining depressions above antennae; vertex and temples dull, the latter punctate adjacent occiput; mesoscutum impunctate with satin-like lustre; scutellum impunctate, polished; mesopleura somewhat dull and minutely, weakly punctate on anterior half, with a small polished area behind; propodeum polished, lateral and apical margin rugulose; metacarpus fully as long as stigma; radius longer than transverse cubitus; nervellus oblique, curved; posterior coxae rather dull, very weakly punctate; abdomen compressed on apical half; first tergite narrowing a little from beyond base, at apex as broad as median length of second tergite, basal half mostly polished, with a small, median, polished, somewhat elevated area at apex, remainder feebly rugose and somewhat dull; second tergite short, transverse, fully two and one-half times as broad at apex as at base, smooth except for faint sculpture along apical margin; remainder of tergites shining, impunctate; hypopygium large, projecting distinctly beyond apex of last dorsal segment; ovipositor sheath broad, curved, as long as abdomen.

Black; antennae and tegulae black; front femora brown at apex; front tibiae and tarsi brown, darker above; base of hind tibia sordid yellowish brown, hind calcaria whitish; hypopygium dark brown; membrane hyaline; stigma brown, dark along costal margin; veins brownish.

Holotype.—♀, Constance Bay (Carleton Co.) Ont., May 16, 1934 (G. S. Walley). No. 4154 in Canadian National Collection, Ottawa, Ont.

Paratype.—♀, Constance Bay, Ont., May 18, 1936 (H. Fleming).

Host.—Both specimens were reared from the pitch mass of *Petrova albicapitana* Bsk., found feeding in *Pinus banksiana.*

Cocoon.—Solitary; delicate, white, within the cavity formed by the larva in the pitch mass.

*Contribution from the Division of Systematic Entomology, Entomological Branch, Department of Agricudture, Ottawa, Ont.

Stiphrosomus fucatus (Cress.)

Mesoleptus fucatus Cresson, Trans. Am. Ent. Soc., II, 99, 1868.
Mesoleptus depressus Provancher, Nat. Can., VII, 114, 1875. (New Synonymy).
Mesoleptus erectus Provancher, Nat. Can., VII, 317, 1875.

This species varies considerably in color especially in respect to the proportions of black and reddish on the thorax. The types of both *depressus* and *erectus* have been studied and found to fall within the range of variation for the species. Davis (1897) correctly pointed out the synonymy for *erectus* but appears to have misidentified *depressus*, placing it in *Ipoctonus*. The type of *depressus* (Gahan and Rohwer lectotype) is a specimen having the thorax largely black, with only the anterior portion of the median lobe of the mesoscutum reddish.

Stiphrosomus clinatus n. sp.

Easily distinguished from *fucatus* by the entirely black, more heavily punctate head and thorax, the more prominent eyes and the distinctly sculptured propodeum and second abdominal tergite.

Female.—Length 8 mm. Eyes small but prominent, somewhat exserted; face very broad, distinctly broader than length of eye; face coarsely and rather densely punctate except on sides below; free margin of clypeus broadly rounded, slightly truncate at middle; malar space equal to basal width of mandible; temples very broad, viewed from above only feebly arcuate and very slightly receding; front, vertex and temples shining with numerous rather coarse punctures; ocellocular space two and one-half times diameter of lateral ocellus. Notauli absent; entire thorax rather densely punctate, the pleural punctures a little larger and in some parts tending to be confluent; propodeum duller than thorax, carinae as in *fucatus* but weaker especially those bounding the combined basal area and areola and anteriorly limiting the petiolarea; surface of propodeum finely irregularly rugulose with scattered shallow punctures in front, petiolarea and apical lateral areas more shining; areolet very small or absent; nervulus interstitial. Basal two-thirds of first abdominal segment slender, beyond sides gradually diverging, length two and one-half times width at apex, median dorsal carinae weak, feebly defined for a short distance beyond spiracle; second tergite with sides rather strongly diverging apically, about four-fifths as long as broad at apex; first and second tergites dullish, finely and irregularly wrinkled, the second with a few shallow punctures; third tergite smoother, mostly finely punctate; following tergites more shining with only minute reticulate sculpture.

Head and thorax pure black; scape and pedicel dark brownish black; flagellum and palpi light brown; tegulae dark brown; coxae, trochanters, middle femora except at apex and hind femora entirely, black; remainder of legs brownish, the front femora darker towards base and hind tibia with apical third dark brown; first abdominal segment black at base, mostly reddish beyond spiracles; following three tergites entirely reddish; remainder of abdomen black; stigma and veins brown, the former a little paler at base, membrane faintly brownish.

Holotype.—♀, Banff, Alta., June 26, 1922 (C. B. D. Garrett). No. 4153 in Canadian National Collection, Ottawa, Ont.

Paratype.—♀, Banff, Alta., June 20, 1922 (C. B. D. Garrett).

Provancherella rhopalocera (Prov.)

Baryceros rhopalocerus Provancher, Nat. Can., VII, 269, 1875.
Mesoleptus largus Provancher, Add. Faun. Ent. Can. 98, 1886 (New Synonymy).
Provancherella rhopalocera Provancher, Dalle Torre, Cat. Hymen., III, 305, 1901.

This species, described in *Baryceros* was subsequently removed by Provancher to *Mesoleptus*. Davis in his "Review of the Tryphoninae" retained the generic name *Baryceros* but pointed out that it was probably inapplicable and suggested that the species might have affinities with the Ctenopelmini. Dalle Torre, without comment proposed the new generic name *Provancherella* to replace *Baryceros* Prov. (nec. Grav.). Cushman recently (in Leonard's N. Y. List of Insects, 1926) placed the genus in the Catoglyptini (sensu Schmiedknecht) immediately following *Stiphrosomus,* both genera falling in the subtribe Catoglyptina. Where the species *rhopalocera* is discussed by previous authors only the male is referred to.

While the writer was examining the Provancher types recently the resemblance of the female type of *Mesoleptus largus* to the genus *Stiphrosomus* as represented by *S. fucatus* Cress. was noted. This at once suggested the possibility that *largus* might be the female of *rhopalocera*. A study of the types and other material substantiates this view and the above synonymy is therefore proposed.

The narrow and upcurved sheath and ovipositor of *largus* is also characteristic of *Stiphrosomus*. In the females of both genera the antennal flagellum is slender at the base, the segments becoming gradually thicker distally. In the males the segments are verticellate. Both genera have a distinctive mandibular structure, the lower tooth being longer than the upper. The propodeal carinae are also characteristic. In *Provancherella* in addition to the flagellum of the male being unusually stout in the region of the middle third, the first abdominal segment is much broader in proportion to its length in both sexes than it is in *Stiphrosomus*. These characters will serve to separate the two genera.

The following description of the female of *rhopalocera* drawn from the type of *largus* and specimens before me is offered below. The characters in quotations are from my notes on the type of *largus*.

"Type ♀, yellow label No. 1231, (antennae missing except right scape and pedicel). Lower tooth of mandible slightly longer than upper; clypeus feebly convex with free margin broadly rounded and a suggestion of a slight median notch; malar space short, less than basal width of mandible; face evenly punctate; areolet oblique, small, nearly absent; propodeum with basal area and areola confluent, narrow; petiolarea distinct; costulae absent; ovipositor and sheath slender, upcurved."

Length 5.75 mm. Eyes large; face slightly narrower than front; malar space scarcely two-thirds basal width of mandible; ocellocular space one and one-half times diameter of lateral ocellus; clypeus very sparsely punctate, face and front more densely so; vertex, temples and genae shining, faintly shagreened, without punctures except the very fine ones bearing vestiture; temples broadly rounded, slightly receding, in lateral aspect scarcely narrowed ventrally; occipital and hypostomal carinae uniting distinctly before base of mandible; notauli

distinct to point opposite tegulae, faintly foveolate in front; mesopleura polishe impunctate; mesoscutum and scutellum shining, with fine setigerous puncture propodeum moderately shining, median carinae forming a narrow rectang which is traversed by several carinae; petiolarea well defined by carinae; co tulae absent; lateral carinae distinct; areolet small, petiolate, oblique, second r current joining near apex; nervulus interstitial; first abdominal segment nar at base, commencing to broaden slightly in front of spiracles, at apex almost tw thirds as broad as long, median dorsal carinae distinct from base to a point little beyond spiracle; second tergite with sides evenly diverging, at apex thre fifths as broad as long; first and second tergites except apex of latter, finely i regularly wrinkled; remainder of tergites polished, minutely reticulate.

Head and thorax black; free margin of clypeus, mandibles and palp yellowish; scape, pedicel and first four flagellar segments yellowish-brown, r mainder of flagellum dark brown; tegulae pale yellowish-brown, front legs l deeply so with their tarsi pale yellowish; extreme apex of hind femora blac ish; apical fourth of hind tibia black; first abdominal tergite blackish at bas sheath of ovipositor brown; wings faintly tinged with brown, veins and stig brown, latter with a pale spot at base.

Polyterus albipectus n. sp.

Resembles *P. olympiae* Ashm. but hind coxae not entirely red or bas two-thirds of hind tibia white as in that species. Mesosternum largely or entir ly white in both sexes; second tergite evenly sculptured at base.

Davis (1897) placed *olympiae* in Foerster's genus *Polyterus* with on other species. The species here described is certainly congeneric with *olympi* and for the present both species are referred to *Polyterus*. In Schmiedeknecht classification the present species would fall in his Subtribe *Euryproctina* where traces near *Synodites* and *Hypamblys* agreeing only imperfectly with the charac ters given for either genus. The description is as follows.

Female.—Length 6 mm. Head dull, shagreened; malar space approx mately three-fourths basal width of mandible; ocellocular space a little broade than diameter of lateral ocellus; temples broad, rounded, scarcely receding; fac about twice as broad as long; clypeus elevated, free margin thin with weak me ian emargination; occipital and hypostomal carinae uniting before base of man ible; antennae with rather dense short hairs. Mesoscutum shining with minu shallow punctures; mesopleura polished, only sparsely finely punctured in fro and along lower margin; metapleura shining, evenly minutely sculptured; pr podeum with median longitudinal carinae distinct and close together, paral or nearly so to beyond middle, then suddenly diverging to form a rounded petio area; lateral carina extending from spiracle to apex, weak near spiracle; propo eum shining, petiolarea and region between lateral carina and metapleuron irreg larly rugulose, propodeum elsewhere only feebly sculptured, impunctate; petio larea sometimes with a weak median longitudinal carina which branches front to more or less delimit this area from the areola; basal area and areola mo or less united, with a few transverse rugulae; radius emitted distinctly before mi dle of stigma; nervulus oblique, post-furcal by nearly half its length; nervell broken at posterior third. First tergite strongly and somewhat transversely rug

e with a median pair of narrowly separated longitudinal carinae extending to pical third; second and following tergites very finely sculptured, shining.

Black except as follows: face white except for black inverted triangle ith apex extending to base of clypeus; palpi, cheeks, spot on scape below, tegu-e, spot below, broad stripe on pronotum in front, prepectus, mesosternum and djacent lower portion of mesopleura, upper posterior angle of mesopleura, vided spot on scutellum, front and middle coxae and trochanters, apical half hind coxae and distal trochanters, broad lateral margins of fourth and fol-wing tergites, very narrow line on apex of third and following tergites, white; mainder of front and middle legs reddish, the middle tarsi paler; hind coxae ack on basal half above shading to reddish beneath; hind femora reddish; hind bia with apical third black with a brownish streak extending along upper rface nearly to base, the remainder white; hind tarsi black; stigma and veins rk brown; abdominal sternites white with large black patches on sides of all t first.

Male.—Length 5.5 mm. Very similar to female but with face entirely hite.

Holotype.—♀, Cascapedia River (Gaspe Co.) Que., 1935 (C. C. Smith), o. 4158 in the Canadian National Collection, Ottawa, Ont.

Allotype.—♂, same data as holotype.

Paratypes.—5♀♀, 2♂♂, Same data as holotype. Paratypes in C.N.C. d United States National Museum.

THE NORTH AMERICAN SPECIES OF ANISOTOMA (COLEOPTERA).*

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The species considered below are those which are listed in *Leiodes* in the ng Catalogue of Coleoptera and which were treated under the name *Liodes* by orn (1880, Trans. Am. Ent. Soc. VIII, 296). Since the appearance of Horn's nopsis, they have been neglected, and only one species, *interstrialis* Hatch, has en described. In the following synopsis, three species are described as new, veral changes in nomenclature are suggested, and a number of important aracters not noted by Horn are described.

The species of *Anisotoma* can be separated without difficulty; most of em are strongly characterized by the sculpture of the dorsal parts, by secondary xual characters of the ventral surface and legs, and by the form of the male enitalia. The sexual characters are worthy of special note. Except for a small nount noted below in *globososa,* I have not observed heterogony in them. The oveae which occur in the mentum of certain males are moderately large, rcular, and deep; they may be observed without difficulty. The foveae or erod-d areas of the anterior portion of the metasternum are supplied with long, osely placed hairs as in *Agathidium.* The aedeagus is of the type found in the uropean *Anisotoma humeralis* Fab. which has been figured by Sharp and Muir

*Contribution from the Division of Systematic Entomology, Entomological Branch, Department of Agriculture, Ottawa.

(1912, Trans. Ent. Soc. London, pt. III, 504, pl. L, fig. 53). The median lobe is cylindrical and is strongly bent near the base which is more or less swollen. The median orifice is large and is situated at the apex on the ventral face of the median lobe. The lateral lobes are flattened and are appressed against the sides of the median lobe; they follow the curve of the median lobe and are fused to the latter and joined together on the dorsal surface near the base. They may or may not be joined together ventrally. The internal sac is supplied with a complex armature. The species show differences in the general form of the lobes, in the form of the apex of the median lobe, and in the structure of the armature of the internal sac. Only two species, *amica* and *basalis*, have similar genitalia. It has not been noted previously that in three of the American species the anterior tarsi of the females are four-segmented.

Anisotoma, as represented by the American and European species, is a strongly characterized genus including species not always closely allied among themselves. By the characters noted in the first couplet of the following key, *blanchardi* appears to be the most strongly characterized American species. *Geminata* and *confusa* are closely allied and differ from the other species by important characters noted in couplet three of the key. *Basalis* and *amica* are closely allied, and *globososa inops, nevadensis,* and *expolita* appear to form a natural group of species. These groups and the remaining species are not closely allied among themselves. Portevin has suggested that several of our species may fall into the genus *Eucyrta* which he established for four Japanese species (1927, Encycl. Ent. Coleop. II, 82). He has restricted *Anisotoma* to include species in which the anterior and middle tarsi of the males are strongly dilated and in which the elytra are closely punctured and with or without strial punctures. In *Eucyrta* the anterior and middle tarsi are not or are feebly dilated, and the elytra are not or scarcely punctate between the striae. The American species are not divisible by such characters, and study of them suggests that *Eucyrta* is synonymous with *Anisotoma*.

During the preparation of the following descriptions, I have seen type material of all the species. The measurements given below are from specimens in which the body is partially extended. The essential characters of *Anisotoma* are as follows:

Body moderately contractile. Head less than half as wide as the pronotum; with a well developed antennal groove on each side beneath, the groove not limited by a carina on the outer side; frontal suture distinct; labrum subtruncate; antenna of eleven segments, its club of five segments. Elytra, viewed from the side, distinctly sinuate. Prosternum linear before and behind the coxae. Mesosternum between the coxae vertical; its apex a free, laminiform process. Anterior tibiae slender, without tarsal grooves.

Sexual characters. Anterior and middle tarsi more or less enlarged in the male, stouter than in the female; supplied beneath with squamiform hairs in the male, with simple hairs in the female; the number of tarsal segments differing in the sexes, 5-5-4 in the male, 5-4-4 or 4-4-4 in the females. Abdomen of six distinct segments in the male, of five in the female. With other sexual characters of specific value.

KEY TO SPECIES.

1. Antenna with the seventh and eighth segments of equal width, the sixth much marrower. Elytron with nine simple rows of punctures, the ninth not joining the marginal gutter; the punctures of the intervals very indistinct. Female with the anterior tarsi four-segmented .. 1. *blanchardi* Horn.
Antenna with the sixth and eighth segments of subequal width, the seventh much wider ..... 2.
2. Elytral punctures equal in size, regularly distributed, showing no trace of serial arrangement ..... 11. *errans* n. sp.
Elytral punctures more or less serial in arrangement; the series, when not well defined, separated by intervals of larger or smaller punctures ..... 3.
3. Each elytron with nine well defined series of moderately coarse punctures, the ninth series never joining the marginal gutter before the middle. Female with the anterior tarsi five-segmented ..... 5.
Elytra with the series of punctures more confused; the ninth series, when defined, joining the marginal gutter just behind the humeral angle. Female with the anterior tarsi four-segmented ..... 4.
4. The series of coarse elytral punctures well defined, separated by intervals as wide as or wider than the series, these intervals not distinctly punctate .....2. *geminata* Horn.
The series of coarse elytral punctures wider and more poorly defined, separated by intervals narrower than the series, the intervals very distinctly punctate .....3. *confusa* Horn.
5. Elytra in part or entirely red; pronotum blackish ..... 6.
Elytra not maculate, never paler than the pronotum ..... 7.
6. Each elytron with a transverse, basal red spot. Punctures of the elytral intervals fine but quite distinct ..... 9. *amica* n. sp.
Red areas of elytra usually more extensive. Punctures of the elytral intervals very fine, indistinct ..... 8. *basalis* Lec.
7. Head and pronotum orange red; elytra very dark red or blackish .....
.....6. *nevadensis* n. n.
Head, pronotum, and elytra of the same color ..... 8.
8. Ninth series of elytral punctures not joining the marginal gutter .....
..... 10. *obsoleta* Horn.
Ninth series of elytral punctures joining the marginal gutter behind the middle ..... 9.
9. Elytral intervals very distinctly punctate ..... 10.
Elytral intervals very indistinctly punctulate ..... 11.
10. Posterior pronotal angles distinctly rounded. Metasternum moderately coarsely punctate at middle, not tuberculate. Elytra of the male opaque in part .....4. *globososa* Hatch.
Posterior pronotal angles scarcely rounded. Metasternum very finely punctate at middle; with a small, elongate tubercle on each side of the median line before the posterior coxae, the tubercles sometimes indistinct in the female. Elytra of the male polished .....5. *inops* n. sp.
11. Black above. Posterior femur of male with a denticle on the hind margin. Fifth abdominal segment of female tuberculate .....7. *expolita* n. n.

Very dark red above. Posterior femur of male without a denticle. Fifth abdominal segment of female not tuberculate ..... 12. *discolor* Melsh.

1. **Anisotoma blanchardi** Horn.

Liodes blanchardi Horn, 1880, Trans. Am. Ent. Soc. VIII, 298.

Length 2-2.3 mm. Body a little more convex and less broadly rounded behind than in *globososa*. Dark red, the pronotal margins, appendages, and ventral surface, except the metasternum, paler. Eighth antennal segment as wide as the seventh, much wider than the sixth. Head microscopically reticulate, finely and sparsely punctate. Pronotum microscopically punctulate and reticulate; the punctules not coarser or closer on the sides; the basal margin oblique before the angles; the latter very obtuse but well defined. Each elytral stria represented by a single row of rather fine punctures; the rows not or scarcely irregular, the ninth distant from the margin throughout its length; punctures of the intervals very fine and sparse, indistinct. Metasternal punctures sparse, very fine at middle.

Male. Anterior and middle tarsi not dilated, scarcely stouter than in the female. Middle femur without a denticle; hind femur with a strong denticle at middle of posterior margin, widest at the denticle. Mentum without foveae. Metasternum anteriorly with a pair of very small, punctiform foveae, these scarcely as large as the punctures of the metasternal sides, separated by a distance equal to about four times the diameter of a fovea. Fifth abdominal segment three-fourths as long as the fourth.

Female. Anterior tarsi four-segmented. Hind margin of posterior femur arcuate. Fifth abdominal segment not modified.

The species is rare in collections. I have seen it from Knowlton, Que., and from Pennsylvania and Massachusetts. The median lobe of the aedeagus is narrowed and rounded at the apex, and the lateral lobes are not joined together ventrally. In this species only, the internal sac is supplied with a very slender, sinuous flagellum which extends through the median orifice and well beyond the apex of the median lobe in all specimens studied.

2. **Anisotoma geminata** Horn.

Liodes geminata Horn, 1880, Trans. Am. Ent. Soc. VIII, 299.

Length 3-3.7 mm. Body less broadly rounded behind than in *globososa*. Dark red or reddish-brown above; the ventral surface and appendages red. Sixth and eighth antennal segments similar in size and form. Head finely, not closely punctate, microscopically reticulate. Pronotum microscopically reticulate and puntulate; the punctules very sparse, not coarser or closer on the sides; the basal margin somewhat oblique before the angles; the latter slightly obtuse, scarcely rounded. Each elytral stria represented by an irregular series of moderately coarse punctures; each series appearing in most of its length as two or three confused rows of punctures; the ninth series joining the marginal gutter at basal sixth; the intervals equal in width to or a little wider than the series, very indistinctly punctulate. Metasternum very finely punctate at middle; the punctures on the sides neither coarse or close.

Male. Three basal segments of each anterior and middle tarsus strongly dilated; the basal segment of each very feebly asymmetrical. Femora without denticles; the posterior clavate, widest at apical third. Mentum without foveae.

Metasternum not modified. Fourth abdominal segment two-thirds as long as the fifth.

Female. Anterior tarsi four-segmented. Posterior femora less strongly clavate. Fifth abdominal segment strongly impressed at middle.

The species may be recognized by the sculpture of the elytra. It is closely allied to *confusa.* Our specimens are from Cascapedia, Que., and Arnprior and Ottawa, Ontario. I have seen others from Maine, Massachusetts, North Carolina, and Illinois. In *geminata* the aedeagus is much longer than in the other species and is strongly recurved at apical third. The lateral lobes are not joined together ventrally. The median lobe is feebly constricted near the apex and broadly and shallowly emarginate at the apex.

3. **Anisotoma confusa** Horn.

Liodes confusa Horn, 1880, Trans. Am. Ent. Soc. VIII, 299.
Anisotoma interstrialis Hatch, 1936, Jour. N. Y. Ent. Soc. XLIV, 38.

Length 3-3.5 mm. Reddish brown above, the pronotum darker except near the margins; red beneath. Posterior pronotal angles in *geminata.* Punctures representing the elytral striae moderately coarse, arranged in bands which are traceable in part and which are separated by narrower bands of finer punctures; the punctures representing the ninth stria joining the marginal gutter near base as in *geminata.*

Male. Anterior and middle tarsi and posterior femora as in *geminata.*

Female. Anterior tarsi four-segmented and fifth abdominal segment impressed as in *geminata.*

The species is closely allied to *geminata* but differs in having the punctures representing the striae arranged in wider and less well defined bands. Horn's single type of *confusa* is a male from western Nevada, and his collection contains also a female from Washington Territory. In addition to these, I have seen, through the kindness of Dr. Hatch, the paratype of *interstrialis.* The specimen is a female and, like the type of *interstrialis,* came from Seattle, Wash. It agrees with *confusa* in every essential respect. I have not observed the aedeagus of the species.

4. **Anisotoma globososa** Hatch.

Cyrtusa globosa Lec., 1850, Agassiz Lake Superior, 222, (*nec* Herbst, 1792, Kaf. IV, 84, t. 38, f. 2).
Anisotoma globososa Hatch, 1929, Junk Coleop. Cat. 105, 56.

Length 2.9-3.7 mm. Body broadly and similarly rounded anteriorly and posteriorly. Black; the pronotal margins rufescent; antennae, mouth parts, legs, and ventral surface except for the metasternum dark red; the femora sometimes blackish. Head finely, moderately closely, and very distinctly punctate, without other sculpture; the eighth segment of the antenna a trifle wider than the sixth. Pronotum with the sides punctate like the head, the punctures finer and sparser at middle, without other sculpture; the basal margin not oblique near the posterior angles; the latter slightly obtuse, distinctly but not broadly rounded. Each discal stria of the elytra represented by a single regular series of moderately coarse punctures; the punctures of the lateral striae slightly irregular: those of the ninth striae in two or three confused rows, joining the marginal gutter just behind the middle; the intervals finely, moderately closely, and very

distinctly punctate. Metasternum coarsely and densely punctate on the sides, the punctures less coarse at middle.

Male. Anterior and middle tarsi not dilated, the segments only slightly stouter than in the female. Middle femur with a denticle on posteroior margin at basal fourth, this scarcely evident in the smallest specimens; lower posterior margin of hind femur straight, with a denticle at basal two-fifths. Elytra pruinose and opaque in part; each elytron shining only on a scutellar area extending to the base of the fourth stria and to middle at the suture in large specimens, the shining area extended in smaller individuals but the lateral declivity distinctly pruinose and subopaque in the smallest specimens; the punctures of the intervals less distinct on the opaque areas. Mentum bifoveate. Metasternum anteriorly with a transversely oval fovea, the width of the fovea as great as the width of the intercoxal process in its narrowest part. Fourth and fifth abdominal segments equal in length.

Female. Anterior tarsi five-segmented. Lower posterior margin of hind femur moderately arcuate from base to a point near apex. Fifth abdominal segment not modified.

This species differs from all others in having the elytra in part pruinose and opaque in the males. We have specimens from Gaspe County, Knowlton, Montreal, Alcove, and Laniel, Quebec; Sudbury, Arnprior, and Ottawa, Ontario; Wawanesa, Manitoba; Merritt and Brookmere, British Columbia. I have seen specimens from Maine and Massachusetts, and the species has been recorded from Kentucky and Michigan. The lateral lobes of the aedeagus of *globososa* are joined together ventrally as well as dorsally. The median lobe is not narrowed near the apex which is truncate and with the angle on each side produced into an acute tooth-like process.

5. **Anisotoma inops** n. sp.

Length of holotype 2.9 mm., of paratypes 2.3-3 mm. Posterior pronotal angles rectangular, scarcely rounded. Metasternum moderately coarsely and closely punctate on the sides, the punctures very fine at middle. Other characters except those described below, as in *globososa*.

Male. Anterior and middle tarsi as in *globososa*. Middle femur with the denticle at basal third, the denticle distinct in all specimens; lower posterior margin of hind femur straight, with the denticle at middle. Elytra polished. Mentum without foveae. Metasternum anteriorly with an arcuate, transverse, eroded line, the length of the line five times as great as the width of the intercoxal process; a small, elongate tubercle situated on each side of the median line before the posterior coxae. Fourth and fifth abdominal segments equal in length.

Female. Metasternal tubercles smaller than in the male, sometimes indistinct but always evident. Anterior tarsi five-segmented. Posterior margin of hind femur arcuate and fifth abdominal segment unmodified as in *globososa*.

Holotype.— ♂, Arnprior, Ont., June 21, 1936, (W. J. Brown); No. 4206 in the Canadian National Collection, Ottawa.

Allotype.— ♀, same data.

Paratypes.—8 ♂, 14 ♀, same data; 3 ♂, 3 ♀, Merivale, Ont. June 4, 7, and 13, 1935, (W. J. Brown); 1 ♂, Bathurst, N.B. June, 1925, (J. N. Knull); 1 ♀, Gaspe County, Que. Aug. 22, 1933, (E. B. Watson); 1 ♀, Hull, Que., May 13,

1936, (W. J. Brown); 1 ♂, Knowlton, Que., June 23, 1928, (W. J. Brown); 1 ♂, 1 ♀, Ile de Montreal, Que., May 24, 1903, (Beaulieu); 2 ♂, 5 ♀, Alcove, Que., July 22 1936 (W. J. Brown); 1 ♂, Antrim, N.H., June 21, 1933, (C. A. Frost).

This species differs from all others in having the metasternum bituberculate before the coxae. It has been confused in collections with *globososa*. The aedeagus in *inops* is much stouter than in any other species. The median lobe is deeply emarginate at apex, and the lateral lobes are joined ventrally as in *globososa*.

6. **Anisotoma nevadensis** n. n.

Liodes globosa bicolor Horn, 1880, Trans. Am. Ent. Soc. VIII, 297 (nec Schmidt, 1841, Germar Zeit. fur. Ent. III, 170).

Length 3.8 mm. Body form as in *globososa* and *inops*. Head and pronotum orange-red; ventral surface and appendages darker; elytra very dark red or blackish. Head and pronotum microscopically punctulate and reticulate; the punctules very sparse, the sculpture not coarser on the pronotal sides; posterior pronotal angles rectangular and scarcely rounded as in *inops;* the basal margin of pronotum not oblique before the angles. Elytra as in *globososa* and *inops*. Metasternum with the punctures very fine at middle, moderately coarse and close on the sides as in *inops*.

Male. Secondary sexual characters, except those of the metasternum, as in *inops*. Metasternum anteriorly with two very small foveae; these separated by a distance subequal to the diameter of a fovea, similar in size and form to the punctures of the metasternal sides.

Female. Tarsi, femora, and abdomen as in *globososa* and *inops*.

The species may be known by its color. It is well characterized and should not be considered a variety of *globososa*. It occurs in Nevada. The description above is based on a single male in the collection at hand and on notes made from numerous specimens of both sexes in the Horn collection. The aedeagus has the general form seen in *globososa*, and the lateral lobes are joined ventrally as in that species. The median lobe is furnished with a broad, shallow, U-shaped emargination at apex.

7. **Anisotoma expolita** n. n.

Liodes polita Lec., 1853, Proc. Ac. Nat. Sci. Phila. VI, 285 (*nec* Marsham, 1802, Ent. Brit. 1, 124).

Length 2.9-3.4 mm. Body slightly more strongly convex but otherwise as in *globososa*. Blackish, the pronotal sides rufescent, the appendages and ventral surface reddish-brown, the eighth antennal segment similar to the sixth in size and form. Head and pronotum microscopically punctulate and reticulate; the punctules very sparse, the sculpture not coarser on the pronotal sides; basal margin of pronotum not oblique near the hind angles; the latter rectangular, scarcely rounded. Elytral striae as in *globososa;* the intervals very finely and sparsely and very indistinctly punctulate, those on the sides more or less pruinose but strongly shining. Metasternal punctures very fine at middle, coarse and very close on the sides.

Male. Anterior and middle tarsi not dilated but considerably stouter than in the female. Middle femur with a denticle on posterior margin at basal fourth; lower posterior margin of hind femur straight, with a denticle at basal two-fifths. Lateral margin of elytron, viewed from the side, much more strongly

sinuate than in the female. Mentum bifoveate. Metasternum anteriorly with a small transversely oval fovea, this a little smaller than in *globososa*. Fourth and fifth abdominal segments equal in length.

Female. Anterior tarsi five-segmented. Lower posterior margin of hind femur arcuate from base to a point near apex. Fifth abdominal segment with a well developed, cariniform tubercle.

The species differs from all others in having in the male the lateral margins of the elytra much more strongly sinuate and in having, in the female, the fifth abdominal segment tuberculate. Our specimens are from southern Ontario, Kentucky, and Pennsylvania; the species has been recorded from Michigan, Georgia, South Carolina, and Virginia. The median lobe of the aedeagus is furnished with a deep, broad, U-shaped emargination at apex, and the lateral lobes are joined together ventrally.

8. **Anisotoma basalis** Lec.

Liodes basalis Lec., 1853, Proc. Ac. Nat. Sci. Phila. VI, 285.
Liodes dichroa Lec., loc. cit.

Length 2.5-3 mm. Body a little less broadly rounded posteriorly, the form otherwise as in *globososa*. Head and pronotum blackish, an area on the front and the pronotal sides more or less rufescent; elytra red, usually with each sutural interval and the extreme apex blackish, rarely entirely red, rarely with the blackish areas extended to cover the disk except at base; appendages and ventral surface red, the metasternum and antennal club darker. Sixth and eighth antennal segments similar in size and form. Head and pronotum microscopically reticulate; the head finely and moderately closely punctate; the pronotum with the punctures at the sides a little finer and sparser, those of the middle very fine; the pronotal base somewhat oblique before the angles; the latter distinctly obtuse, scarcely rounded. Each elytral stria represented by a confused series of moderately coarse punctures, each series appearing in most of its length as two much confused rows of punctures; the ninth stria joining the marginal gutter at middle; the intervals very finely, sparsely, indistinctly punctulate. Punctures of metasternum fine at middle, moderately coarse and close on the sides.

Male. Anterior and middle tarsi not dilated but considerably stouter than in the female, the basal segment of each feebly asymmetrical. Femora without denticles, clavate; the posterior widest two-fifths from apex, its posterior margin arcuate. Mentum without foveae. Metasternum anteriorly with two transverse eroded areas, these elongate oval, slightly oblique, the length of each and its distance from the other subequal to the width of the intercoxal process. Fifth abdominal segment slightly but distinctly longer than the fourth.

Female. Anterior tarsi five-segmented. Hind femur as in the male. Fifth abdominal segment feebly impressed at middle.

The four large segments of the antennal club are much more strongly transverse than in any other species except *amica*. Our specimens are from Hemmingford, Aylmer, and Alcove, Que.; Merivale and Ottawa, Ont. I have seen others from Maine, Pennsylvania, North Carolina, Pennsylvania, Ohio, and Michigan. The median lobe of the aedeagus is narrowed and rounded at the apex, and the lateral lobes are not joined ventrally.

9. **Anisotoma amica** n. sp.

Elytra blackish, red at base; the red area extending from the humerus to the first or second stria, about four times as wide as long, not sharply limited. Punctures of elytral intervals fine, not close but much coarser and closer than in *basalis*, very distinct. Female with the fifth abdominal segment not modified. Other characters as in *basalis*.

Holotype—♂, Mt. Lyall, Gaspe County, Que., June 24, 1933. (W. J. Brown); No. 4207 in the Canadian National Collection, Ottawa.

Allotype—♀, same data.

Paratypes—2 ♂, 1 ♀, same data; 1 ♀, Hemmingford, Que., June 22, 1917, (J. I. Beaulne); 1 ♀, Sudbury, Ont., 1899; 1 ♀, Sanca, B. C., May 22, 1933, (G. Stace Smith); 1 ♀, Copper Mountain, B. C. June 12, 1929, (G. Stace Smith).

In *basalis* the red areas of the elytra are nearly always much more extensive than in the present species. The aedeagus differs from that of *basalis* only in having the median lobe a little more broadly rounded at apex.

10. **Anisotoma obsoleta** Horn.

Liodes obsoleta Horn, 1880, Trans. Am. Ent. Soc. VIII, 298.

Length 2.3-3 mm. Body more strongly narrowed posteriorly than in the other species. Very dark red above, sometimes almost black, the ventral surface and appendages paler. Head finely, not closely punctate, microscopically reticulate; antenna with the eighth segment similar to the sixth. Pronotum microscopically punctulate and reticulate; the punctules very sparse, not coarser or closer on the pronotal sides; pronotum somewhat oblique before the posterior angles; the latter distinctly obtuse, scarcely rounded. Each elytral stria representated by a slightly irregular and confused row of fine punctures; the ninth row not joining the marginal gutter; the punctures of the intervals not close, very fine but distinct. Punctures of the metasternum very fine at middle, close and moderately coarse on the sides.

Male. Anterior and middle tarsi not dilated, somewhat stouter than in the female. Femora without denticles; the posterior margin of the hind femur very obtusely but distinctly angulate at basal third; the margin straight on either side of the angle, sinuate before the apex, the angle so formed at the condyle much stronger than in the other species. Middle tibia very feebly arcuate near apex. Mentum without foveae. Metasternum anteriorly with two very small punctiform foveae; these subequal in size to the punctures of the metasternal sides, usually separated by a distance equal to about four times the diameter of a fovea, sometimes more approximate. Fourth abdominal segment slightly longer than the fifth.

Female. Anterior tarsi five-segmented. Middle tibiae straight. Posterior margin of hind femur feebly arcuate, the subapical sinuation much less deep. Fifth abdominal segment not modified.

The species differs from all others except *blanchardi* in having the ninth stria distant from the margin throughout its length. We have it from Bouctouche, N.B.; Gaspe Co., Hemmingford, Knowlton, and Alcove, Que.; Arnprior and Ottawa, Ont. I have seen specimens from Maine and Massachusetts. In all species except *obsoleta*, the lateral lobes of the aedeagus nearly or quite attain the apex of the median lobe. In *obsoleta* the lateral lobes do not extend quite to the middle

of the median lobe. The latter is strongly narrowed at the apex and is supplied there with a U-shaped emargination. The lateral lobes are not joined ventrally.

11. **Anisotoma errans** n. sp.

Length of holotype 2.7 mm., of paratypes 2.3-2.7 mm. Body a little more elongate and less broadly rounded posteriorly than in *globososa*. Black; the pronotal margins rufescent, the ventral surface except metasternum and appendages reddish-brown. Eighth antennal segment similar in size and form to the sixth. Head and pronotum microscopically reticulate; the punctures of the head fine, moderately close; those of the pronotum a little finer and sparser, distinct, not coarser or closer on the sides; basal margin of pronotum oblique before the angles; the latter very obtuse but well defined. Elytral punctures rather fine, moderately close, regularly distributed over the entire surface, without any trace of serial arrangement. Punctures of the metasternum very fine at middle, moderately coarse and close on the sides.

Male. Anterior and middle tarsi not dilated, a little stouter than in the female. Femora without denticles; lower posterior margin of hind femur very obtusely but distinctly angulate at middle. Mentum without foveae. Metasternum anteriorly with a pair of circular foveae; these about twice as large as the punctures of the metasternal sides, separated by a distance equal to about three times the diameter of a fovea. Fifth abdominal segment three-fifths as long as the fourth.

Female. Anterior tarsi five-segmented. Posterior margin of hind femur arcuate. Fifth abdominal segment not modified.

Holotype—♂, Biscotasing, Ont., June 1, 1931, (K. E. Schedl); No. 4208 in the Canadian National Collection, Ottawa.

Allotype—♀, Gaspe Co. Que., July 26, 1934, (E. B. Watson).

Paratypes—1 ♂, same data as holotype, June 19, 1931; 1 ♂, same data as allotype, July 12, 1933; 1 ♂, Vancouver, B.C., March 27, 1931, (H. B. Leech).

The species is strongly characterized by the sculpture of the elytra. The median lobe of the aedeagus is narrowed and narrowly rounded at apex. The lateral lobes are not joined ventrally.

12. **Anisotoma discolor** Melsh.

Liodes discolor Melsh., 1844, Proc. Ac. Nat. Sci. Phila. 11, 103.
Anisotoma piceum Melsh., loc. cit.

Length 2.3-3 mm. Body less broadly rounded posteriorly than in *globososa*. Very dark red above, the pronotal margins, ventral surface, and appendages paler. Sixth and eighth antennal segments similar in size and form. Head microscopically reticulate, very finely and sparsely punctulate. Pronotum microscopically punctulate and reticulate; the punctules very sparse, not coarser on the sides; the basal margin oblique before the angles; the latter distinctly obtuse but very feebly rounded. Each elytral stria represented by a slightly irregular and confused series of moderately coarse punctures; the ninth row joining the marginal gutter behind the middle; alternate intervals with a very few moderately coarse punctures; the intervals otherwise indistinctly punctulate. Metasternal punctures not less close but finer at middle than on the sides.

Male. First segment of each anterior and middle tarsus asymmetrically and rather strongly dilated, these tarsi considerably stouter than in the female.

Femora without denticles; the posterior feebly clavate, not angulate. Mentum without foveae. Metasternum anteriorly with a single circular fovea, this about twice as large as the punctures of the metasternal sides. Fourth abdominal segment three-fifths as long as the fifth.

Female. Anterior tarsi five-segmented. Posterior femur much as in the male. Fifth abdominal segment not modified. Anterior and middle tibiae slightly more slender than in the male.

The elytra, viewed from the side, are seen to be sinuate as in other species of the genus. We have specimens from Knowlton, Aylmer, and Alcove, Que., Arnprior and Ottawa, Ont. I have seen others from Maine, Massachusetts, Connecticut, Virginia, Pennsylvania, and Iowa. The median lobe of the aedeagus is narrowed and rounded at apex. The lateral lobes are not joined ventrally.

A RACE OF EUPHYDRYAS EDITHA BDV. (LEPIDOPTERA).

BY R. F. STERNITZKY,
Berkeley, Calif.

There has been much said, pro and con, on the species known as *Euphydryas editha* Bdv., and its forms, but it seems that the last word is still unspoken.

For several months I have been working on the problem presented by this group, and it seems that the race found in the San Francisco Bay region has, by oversight, never been recorded. My attention was also drawn to this fact by Dr. McDunnough of Ottawa, to whom must go the credit.

In his article, (1936, Bull. South. Calif. Acad. Sci., Jan.—Apr., Vol., XXXV page 1) Dr. McDunnough gives a very splendid, and to my opinion, correct idea of what typical *editha* and *rubicunda* should be, if we follow color pattern of the two and compare same with types, giving due credit to type locality.

In my personal collection, I have examples from Mariposa, collected in the canyons near that town in 1928 on the twelfth day of June. This locality shows typical *editha*. Through the kindness of Mr. L. Martin, I have before me a series of specimens from the Piute Mts. Kern Co., California collected June 22nd, 1924, and also a series from the Greenhorn Mts., collected at Cedar Creek on June 20th., 1931, as well as a series of the form *wrighti* Gunder, sent to me by Dr. C. F. Harbison of the San Diego Natural History Museum. All these have been thoroughly checked, not only by myself, but also by Dr. McDunnough. In my own collection there is also a pair from the Piute Mts. dated June 26th, 1929. All this material bears out the evidence given in Dr. McDunnough's article above mentioned, and if the ruddy appearance is considered we must certainly restrict the name of *editha* to the more northern, instead of to the southern form.

There is little doubt, when one views these series, that *editha* and *rubicunda* are only forms of the same species, and if material can be secured in series, from other parts of the state, this would be verified. At any rate, with the series before me, I can not help but voice my opinion on the side of Dr. McDunnough, in his version of the subject and unless this is definitely proven in error, I shall restrict the name *editha* to the ruddy northern specimens from the Mariposa region, rather than to the Greenhorn Mt. specimens.

There is a race in the San Francisco Bay district that certainly is entirely different, and probably remained undescribed, due to the fact that so little was

known about the species in general. For a considerable time this has passed as *baroni*. I have on hand a series of 24 males and 38 females in which all characteristics are surprisingly constant. In this race the predominating color on the upper surface is black, and the red and ochreous yellow markings stand out in very striking contrast. The under side is also very strongly marked and the designs are exceedingly sharp and clearly outlined by black, although the color in general is much lighter than on the upper surface, the ochreous yellow tending to predominate. In typical *editha* the black markings are less prominent and the red predominates.

During the latter part of April this insect is quite common in the entire bay region, hence its name, and should be easily identified by the following description.

Euphydryas editha var. **bayensis** n. var.

Type male collected at Hillsborough, San Mateo Co., Calif. Apr. 17, 1933. Wing expanse 56 mm. Ground color, upper surface, ochreous yellow, veins all heavily scaled with black. Along the outer margin of both wings there is a band of alternate red and black spots followed by a row of ochreous yellow crescents. Then another band of black. On the primaries another row of ochreous yellow spots followed by a row of black is present, but these do not continue on the secondaries; joining this, in the apical area there is a crescent shaped row of red, tinged with ochreous yellow extending from the costal margin to the 3rd median nervule. Another irregular band of black follows from the costal margin to the inner margin. Next to this, bordering the outer end of the discal cell and extending again to the inner margin there is another ochreous band of spots tinged with red toward the center of the wing. The area between the costal and subcostal veins is black with a sprinkling of ochreous scales and edged with red on the costal margin near the base of the wing. The cell has two red spots, well bordered with black, one is at the outer end of the cell, followed by a patch of ochreous ground color and then by the other red spot. Another patch of ground color follows, between this and the black basal area, but this varies in size in the series before me, almost disappearing entirely in a few specimens.

On the secondaries the submarginal row of ochreous crescents is followed by a wide band of red, bordered along the inner edge of the limbal area in black. An irregular band of ochreous spots follows. Above the cell toward the base, there is a large red spot. Another borders the upper portion of the outer edge of the cell. Both are heavily outlined in black. The lower part of the outer edge of the cell is bordered by a heavy black band which continues to the inner margin near the end of the internal vein. The cell is ochreous, divided across the center by a black spot tinged with red. Another ochreous spot appears below the cell, in some cases becoming more or less suffused by the black color at the base of the wing.

The heavy black bands force the ground color and red areas into striking contrast. The fact that the black color also follows the veins thereby transversing the banding, gives the insect a decided checkered appearance, not found in typical *editha*.

On the under surface the black shading at the base of the wing is not present and is replaced by a red area of definite pattern, extending across the base of the cell from the costal to the inner margin on both wings.

Type female, collected same date at Hillsborough, San Mateo Co., Calif., closely resembles the male, but is slightly darker, the black suffusion being heavier. Wing expanse 58½ mm. A streak of cream colored scales forms a band running lengthwise down the under side of the abdomen. This varies in the series at hand and is sometimes present in the males.

In both sexes the upper and lower surfaces of the body are black. On the lower surface the segments of the abdomen are edged with red, becoming more intense toward the tip. Legs rust brown. Palpi of same color with a streak of ochreous color at the base of the palpal scales. There is a covering of long grey-ochreous scales emanating from the lower side of the thorax and along the inner margin of the secondaries and base of the primaries. The fringes of both wings are gray broken at intervals with black where the veins terminate. Antennae black, fringed with grey at the segments; club black, tipped with rust brown.

Types placed with the California Academy of Sciences, where they shall remain near type locality. 2 pairs of paratypes go to the Canadian National Collection, Ottawa, Ont.; 2 pr. to Dr. F. Cross of Colorado; 2 pr. to Dr. Comstock of the So. Calif. Acd. of Science; 2 pr. to Dr. Herbison of the San Diego Museum; 12 pr. to Mr. F. M. Brown of Colorado, who sent me his entire material while this article was in preparation, 1 pair to Mr. L. Martin; 1 pair to Mr. Strohbeen; and one pair to Mr. R. G. Wind of Berkeley, Calif. I also take pleasure in depositing the various series of *editha* mentioned in this article with the California Academy of Sciences, with the exception of a few pair for personal use, so that they may be of some service for future research. In conclusion I wish to thank the various collectors and authorities that have assisted me during my rather lengthy research in this group and who have supplied me so generously with material.

BRACONINAE FROM WASHINGTON STATE.

BY ROY D. SHENEFELT,
Zoology Dep., State College of Washington.

Genus BRACON Fabricius

1. **Bracon aionos** n. sp.

Length 6 mm.; reddish yellow; beak, antennae, ovipositor sheaths, apices of hind tibiae, and posterior tarsi, dark.

Female—Head: face long, rostriform; malar space five-sixths eye height; face in profile slightly impressed in middle; apices of antennal plates forming a low elevation. Slight groove between antennal plates. Lateral ocelli slightly further from each other than from median ocellus. Ocell-ocular line three times the diameter of a lateral ocellus. Margin of frontal impressions well developed, highest opposite middle of median ocellus, continuous to lateral ocelli. Face very sparsely punctate, shining. Numerous long white hairs on anterior surface, these most dense on clypeus. Antennae forty-two segmented, normal, scape not produced into a short tooth in front. Antennae and lower part of beak black.

Upper half of beak red infused with black, mandible tipped with black. Rest of head reddish yellow.

Thorax: reddish yellow except for metapleura which are slightly infused with black. Pronotal pits distinctly separated. Parapsidal furrows deep, crenulate. Scutum highly polished, sparsely punctate. Hind angles of mesoscutum normal, not produced into a finger-like lobe on each side of scutellum. Mesopleural furrow long, well developed, coarsely foveolate, curved upward as in *californicus* (narrower and much more finely foveolate in *californicus* according to Mr. Muesebeck). Propodeum strongly areolated, spaces between carinae somewhat roughened. Lower third of metapleura coarsely roughened.

Abdomen: red, slightly darkened apically. Ovipositor paler, about 3½ mm. long; sheaths black.

Wings: fuliginous. Veins dark borwn. First abscissa of radius only two-thirds as long as second. Tegulae red.

Legs: fore and middle legs entirely red except for claws. Middle tibia with from 5-9 apical spines. Posterior coxa, trochanter, femur, and tibia (except at distal end) red. Distal part of tibia with an apical cluster of about 12 spines. Posterior tarsus dark. Dark hairs mixed with white hairs on middle and posterior legs.

Male: unknown.

Type: Cat. No. 52168, U. S. N.. M.

Type locality: Central Washington.

Described from two females, one taken at Steamboat Rock, Grand Coulee, Wash., July 10, 1902, and the type from Soap Lake, Grand Coulee, Wash., June 29, 1902. *Paratype* in collection of State College of Washington.

Runs to near *californicus* in Morrison's key. May be separated by the red propodeum.

2. **Bracon washingtonensis** n. sp.

Length 7-8 mm. Red, excepting pro- and mesosternum, tegulae, antennae, lower part of cheeks, anterior and middle legs, posterior trochanters, bases and apices of posterior tibiae and their tarsi, whch are black.

Female—Length 7-8 mm. Head: Face long, rostriform, lower extremity of head half as wide as greatest width of face; malar space about as long as eye height. Face in profile slightly convex. Antennal plates separated by a broad groove. Ocelli equidistant from each other. Ocell-ocular line about 2½ times the diameter of a lateral ocellus. Margin of frontal impressions low, highest opposite posterior edge of median ocellus. Face almost completely smooth, shining, with sparse white hairs. Antennae 37-jointed, normal, apical margin of scape rounded off, not produced into a tooth like projection. Antennae, inter-ocellar space, antennal plates, occiput, and face below clypeal foveae black. Mandibles and beak dark. Rest of face reddish. Sutures at sides of clypeus distinct.

Thorax: Pronotal pits medium in size; narrowly separated. Prosternum black (invaded by red in one specimen). Mesoscutum red polished, hind angles not produced. Sides of thorax red. Mesosternum black to mostly red. Mesopleural furrow horizontal, short and weak, slightly crenulated. Mesopleuron mostly smooth, shining, red; metapleuron red, roughened on lower third, punctate on upper portion. Scutellum and dorsum of propodeum red. Longitudinal car-

inae of propodeum strong, few prominent cross ridges, spaces between carinae roughened.

Abdomen: red, more or less darkened ventrally at apices of segments. Dorsum of segments 2-4 with a small amount of black, location and amount variable. Ovipositor paler than abdomen, sheaths black, length 5 mm., distinctly longer than abdomen.

Wings: infumated, veins dark brown, second abscissa of radius twice as long as first. Tegulae black.

Legs: fore coxae and trochanters black, their femora and tibiae black to dark reddish; tarsi lighter. Middle coxae black to dark red; trochanters black; femora black, reddish beneath; tibiae and tarsi dark; three spines at end of middle tibia. Hind coxae red; trochanters black; femora red, tibiae black at each end and reddish in the middle and with two or three spines at distal end, tarsi black.

Type: Cat. No. 52169, U.S.N.M.

Type locality: Central Washington. Described from 8 females collected at the following localities: Pasco, Wash., May 26th, 1899—2 specimens; Pasco, Wash.—1 specimen (no further data); North Yakima, Wash., Aug. 22, 1903—1 specimen taken by E. Jenne; Lind, Wash., May 26, 1919—1 specimen collected by F. W. Carlson; Yakima, Wash., June 21, 1930—1 specimen collected by A. R. Rolfs; Ritzville, Wash., May 28, 1923—1 specimen collected by M. C. Lane; Ephrata, Grand Coulee,Wash., June 26, 1902—the type specimen; and 3 males, the allotype being taken at Pasco, Wash., one specimen labelled simply E. Washington, and the third taken by E. Jenne at N. Yakima, Wash., Aug. 22, 1903.

Type, allotype, 3 female *paratypes* and 1 male *paratype* in U. S. N. M. Collection. Other *paratypes* in collection of State College of Washington.

Male: length 6-7 mm. Similar to female, but with the areas described as black in the female more or less invaded by red.

Runs to near *nigrosternum* in Morrison's key. May be distinguished by the darker anterior tibiae, the paler posterior tibiae, the definitely longer ovipositor sheath and the greater relative width of the lower extremity of the head.

The species was recognized as new by Mr. C. F. W. Muesebeck and is described with his permission.

My thanks are hereby expressed to Mr. Muesebeck who has kindly criticized the manuscript and offered many helpful suggestions.

A CORRECTION.

BY CORNELIUS B. PHILIP,
Hamilton, Mont.

In the second portion of the paper in the March number of this journal, entitled "Notes on certain males of North American horseflies (Tabanidae) II. The affinis or "red-sided" group of Tabanus sens. lat., with a key to the females," the following corrections should be inserted:

Page 52: in paragraph describing the female of *T. zygotus* n. sp., insert, "pair. Abdomen black, dark reddish on the sides of the first"—after line 14 referring to the legs.

Page 54: couplets 10 and 11 of key to the males should be changed to numbers 6 and 7, the end numbers 11 and 12 thus becoming 7 and 8 respective-

ly; all numbers in present couplets 6 to 9 inclusive are, therefore, increased by 2 to tie in with 12 and the remainder of the key.

Page 57: in couplet 15, the end number 19 should be 18.

SEVENTH INTERNATIONAL CONGRESS FOR ENTOMOLOGY BERLIN 1938.

According to the resolution adopted by the Executive Committee for International Congresses for Entomology, the *Seventh International Congress for Entomology* will convene in Berlin, from August 15th to 20th, 1938.

Discussions will be held in the following sections and on the subjects indicated below:

A. General Entomology:

(1) Systematics and Zoogeography. (2) Nomenclature and Bibliography. (3) Morphology, Physiology, Embryology and Genetics. (4) Oecology.

B. Applied Entomology:

(1) Medical and Veterinary-medical Entomology. (2) Agriculture and Sericulture. (3) Forest Entomology. (4) Agricultural Entomology (a) Viticulture and pomiculture. (b) Agriculture and olericulture. (c) Pests. (5) Means and methods for fighting pests.

The Management of the Congress would deeply appreciate the participation of numerous representatives of scientific and practical entomology in the Congress to be convened in Berlin.

All entries for participation, and all inquiries, should be addressed to the Secretary General, Professor Dr. Hering, Invalidenstrasse 43, Berlin N. 4.

RESEARCH NOTES.

DISCOVERY OF AN AUTUMN HOST PLANT OF MYZUS PERSICAE SULZER.

During the past three years an annual increase in the numbers of *Myzus persicae* Sulzer on potato has been noted in one portion of New Brunswick. The aphids have left the potato plants in September but until this year (1937) it was not know to what plants they migrated in this region. A search made between September 8 and 11 in the potato-growing section of Carleton county, New Brunswick between Woodstock and Florenceville, resulted in the discovery of the alate (fall migrants) feeding and rearing young on the foliage of *Prunus pennsylvanica* L. and *P. virginiana* L.

J. C. BURNHAM.

Dominion Entomological Laboratory Fredericton, N. B.

NEWS AND VIEWS

DR. P. N. ANNAND TO BE RESEARCH ASSISTANT TO THE CHIEF OF THE BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE, UNITED STATES DEPARTMENT OF AGRICULTURE.

A recent press release from Washington informs us, that, effective September 7th, Dr. P. N. Annand will be Special Research Assistant to the Chief of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, and that Mr. C. M. Packard will succeed him as Chief of the Division of

Cereal and Forage Insect Investigations. This announcement was made by Lee A. Strong, Chief of the Bureau.

Unhampered by administrative duties, Doctor Annand will devote his entire time to unifying the Bureau's research and making it more effective. This research, Mr. Strong points out, covers a very wide and constantly growing field. Divided among twelve subject matter divisions, it deals with insects and their relation to man, animals, and crops. Effective control measures for insect pests must be based on exact information on the way the insect looks and lives and on its relations to its hosts. This calls for knowledge of the hosts and their habits and extends into chemistry as it pertains to the developing of insecticides. Central planning is essential in getting the most out of this research.

Doctor Annand has been with the Bureau of Entomology and Plant Quarantine since July 3, 1929. He first investigated the sugar beet leafhopper. Then he was assistant to the Chief of the Division of Truck Crop and Garden Investigations. Since January 16, 1934, he has been Chief of the Division of Cereal and Forage Insect Investigations. Doctor Annand was born in Colorado. He holds the degree of Bachelor of Science from Colorado Agricultural College and the degree of Master of Arts and Doctor of Philosophy from Stanford University.

Mr. Packard a member of the Bureau since 1913, has been in charge of the laboratory of the Division of Cereal and Forage Insect Investigations at Lafayette, Ind. He directed and planned much of the investigational work, notably that on the Hessian fly and chinch bug, in this area. Mr. Packard was born in Massachusetts. The Massachusetts Agricultural College gave him the degree of Bachelor of Science; the University of California, the degree of Master of Science.

HESSIAN FLY INFESTATIONS LOW IN WINTER WHEAT BELT BUT UNUSUALLY NUMEROUS IN SOME NORTHERN AREAS OF THE UNITED STATES

The hessian fly—No. 1 insect enemy of wheat—is about as scarce in the main winter-wheat areas of central and eastern United States as it ever becomes. The U. S. Department of Agriculture's annual fall survey shows extremely light fly infestations, with practically no signs of crop damage, in Nebraska, Kansas, and Oklahoma.

Flies are scarce generally in Iowa, Missouri, northern Illinois, central and northeastern Indiana, Ohio, Kentucky, Tennessee, western and central Pennsylvania, Maryland, Delaware, Virginia, and North Carolina, though occassional local infestations there may be a source of trouble next year. This low level in Hessian fly numbers, the Bureau of Entomology and Plant Quarantine says, results from the weather last fall, which was unfavorable to the flies, and to the delayed sowing of the 1937 wheat crop until after the adults had laid their eggs and died.

In some northern areas—notably northeastern Iowa, southern Wisconsin, and south central Michigan—hessian flies are unusually numerous, and southern Illinois, northwestern and southern Indiana, and southeastern Pennsylvania have moderate-to-severe infestations—the danger signal of a bad outbreak next year if weather favors the flies.

With the results of the Department's survey, State officials concerned are warning farmers of the hessian fly threat and informing them of the safe-sowing dates, which vary from year to year and from locality to locality. This year they range from September 20 in the more northern areas to October 20 in the more southern ones.

ANNUAL MEETING ENTOMOLOGICAL SOCIETY OF ONTARIO.

The Seventy-fourth Annual Meeting of the Entomological Society of Ontario will be held in the Royal Ontario Museum, Toronto, on Thursday and Friday, November 18th and 19th, 1937.

All those interested are urged to make an effort to be present, and help to make the meetings a success either by presenting a paper or taking part in the discussion. Please note that the meetings are being held during the Royal Winter Fair thus affording an excellent opportunity to attend both events and to take advantage of the reduced fares offered by the railroads.

The presentation of a paper should not exceed 15 minutes. This limit, however, does not apply to the manuscript. All those presenting papers are requested to prepare an abstract for delivery at the meetings, thereby allowing time for discussion.

Titles of papers should be in the hands of the Local Secretary by November 1st. Please advise if lantern is required.

The Annual Council Meeting will be held in the Royal York Hotel, Wednesday Evening, November 17th, at 8.15 p.m., in private dining room No. 6.

Thursday Evening, November 18th, there will be an Entomological Dinner (the hour and place to be announced at the General Meetings) at which Professor Parrott of the Geneva Agricultural Experiment Station, will speak on his recent trip to South Africa, illustrated by motion pictures.

Hotel reservations may be made through the Local Secretary.

President, L. S. McLaine,
Entomological Branch,
Department of Agriculture, Ottawa.

Secretary, R. H. Ozburn,
O. A. College, Guelph.

LOCAL COMMITTEE

J. R. Dymond, Royal Ontario Museum, Chairman; Dr. E. M. Walker, Dept. of Biology, Univ. of Toronto; Dr. F. P. Ide, Dept. of Biology, Univ. of Toronto; W. A. Fowler, Secretary; Plant Inspection Office, Room 549, Customs Bldg., Front and Yonge Sts., Toronto (2).

Mailed, October 16th, 1937.